

J. A. McDONALD, INC.

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E-Mail jamcdonaldinc@charter.net

LUNENBURG NH CULV(27)

Lunenburg NH VCULV (27) Contractor Erosion Prevention and Sediment Control Plan

J.A. McDonald, Inc. has reviewed the contract Erosion Prevention and Sediment Control Plans included in the contract documents, and accepts them as our EPSC documents for this project with the following additions/clarifications:

Sequence and Staging

Construction Sequence

The construction sequence for this project is reflected in the project schedule attached and is outlined in the Contract Documents. Any changes in the general sequence will be coordinated through the Resident Engineer.

1. During the mobilization process, and before any earth disturbance commences, the perimeter demarcation and perimeter controls will be installed as outlined in the EPSC Plans.
2. Throughout the construction process, and until final stabilization is achieved as agreed to by the Resident Engineer and the On-site Plan Coordinator, the perimeter controls will be properly maintained.
3. Construction entrances will be constructed and maintained as necessary throughout the construction process as field determined by the On-site Plan Coordinator and the Resident Engineer, to prevent tracking of soils onto the adjacent travel way.
4. Exposed soils will be stabilized as work progresses, and within the guidelines of the Construction General Permit for low risk sites authorization. Temporary stabilization measures will be maintained until final stabilization is achieved as mutually agreed to be the Resident Engineer and the On-Site Plan Coordinator.
5. All temporary stabilization measures will be maintained until final stabilization is achieved, at which point temporary EPSC measures will be removed.

Off Site Activities

Off site activities such as laydown areas, waste and borrow areas will be submitted on at a later date.

Updates

Should field condition warrant a change to the EPSC plans, they will be updated to reflect the changes. A master EPSC plan set with revisions will be maintained on site for the duration of the project.

Contact Information

Contact Information

Patrick Clifford will be the On-Site Plan Coordinator and the primary contact for all erosion prevention and sediment control and environmental activities. His primary contact information is 802-751-9189.

Plan Preparer.

This plan was prepared by Eric Boyden of J.A. McDonald, Inc. and Joey Wilson, P.E., of Wilson Consulting Engineers, PLC whose qualifications are also attached for your review. Tel: 802-472-3960.

Schedule

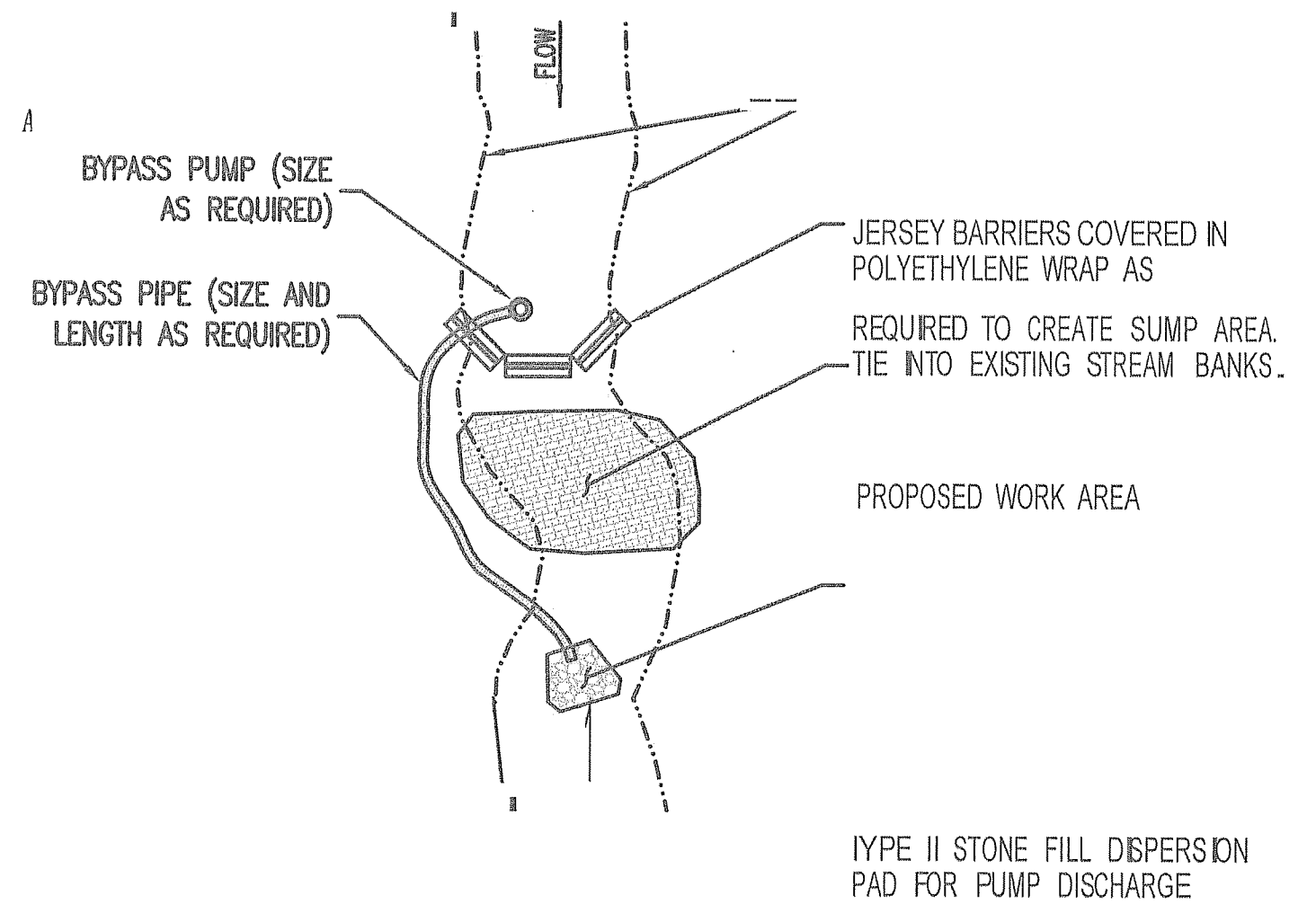
The project schedule is attached for your review.

Inspection Form

J.A. McDonald will utilize the VT DEC Inspection Report for Low Risk Projects under General Permit 3-9020 (also attached).

Other:

The information provided for this submittal does not provide any additional "risk" as determined Appendix A – Risk Evaluation of the Construction General Permit 3-9020 for Stormwater Runoff From Construction Sites. All Permit requirements under the original risk assessment will be strictly adhered to for this project.



STREAM BYPASS PUMPING DETAIL

N.T.S.

Joey Wilson P.E.

EPSC Plan Preparer Qualifications:

Vermont AOT Relevant Experience


- VT AOT Project Brighton ER STP 034-3(25) – Prepared Contractor EPSC Plans & Traffic Control Plans, 2013.
- VT AOT Project Essex Town STP 5400 (5) – Prepared Contractor EPSC Plans including staging and waste areas, 2013.
- VT AOT Project Maidstone STP 0271(20) – Prepared Contractor EPSC Plans, 2013
- VT AOT Project Hubbardton ER STP 0161 (26) (27) – Prepared Contractor EPSC Plans, 2012
- VT AOT Project Montpelier FEGC 028-3(34)5 – On-site Plan Coordinator & Proj Manager, 2009
- VTAOT Project Brandon NH019-3(495) – Prepared Contractor EPSC Plans & Traffic Control Plans, 2009

Other Relevant Experience


- Environmental Specialist for the Kingdom Community Wind Farm in Lowell, VT, 2011-Present On-site representative/specialist for the Vermont Department of Environmental Conservation and Army Corps of Engineers. Worked to ensure permit compliance, and made EPSC Plan modifications as field conditions warranted. Representation and oversight of all environmental and civil construction activities.
The development was inclusive of a 63 megawatt, 21 turbine wind farm. Supporting construction included an operations and maintenance building, a new substation, 7.1 miles of roadway and turbine pads with a cut to fill balance of nearly 600,000 cy of rock excavation and 150,000 cy of earth excavation.
- Project Manager, West Street Reconstruction and Stream Relocation Project Brookfield, Vermont
Project Manager for the reconstruction of West Street and adjoining stream through Randolph, Brookfield, and Braintree, Vermont. Responsible for all on-site operations, including Erosion Protection and Sediment Control, bypass pumping operations to perform excavation work in the active stream, and day-to-day construction operations. Worked with the Owner and the Agency of Natural Resources to ensure permit compliance was being met. Brought the project to completion in 12 weeks.
- Project Engineer/Resident Engineer, Stowe Mountain Resort Infrastructure Package, Stowe, VT
Responsible for the site-specific construction stormwater permit, and on-site permit compliance. Coordination between the owner, contractor, and the Agency of Natural Resources. Additional design responsibilities included permitting and sizing of utilities inclusive of stormwater, sanitary sewer, and water supply.

Education

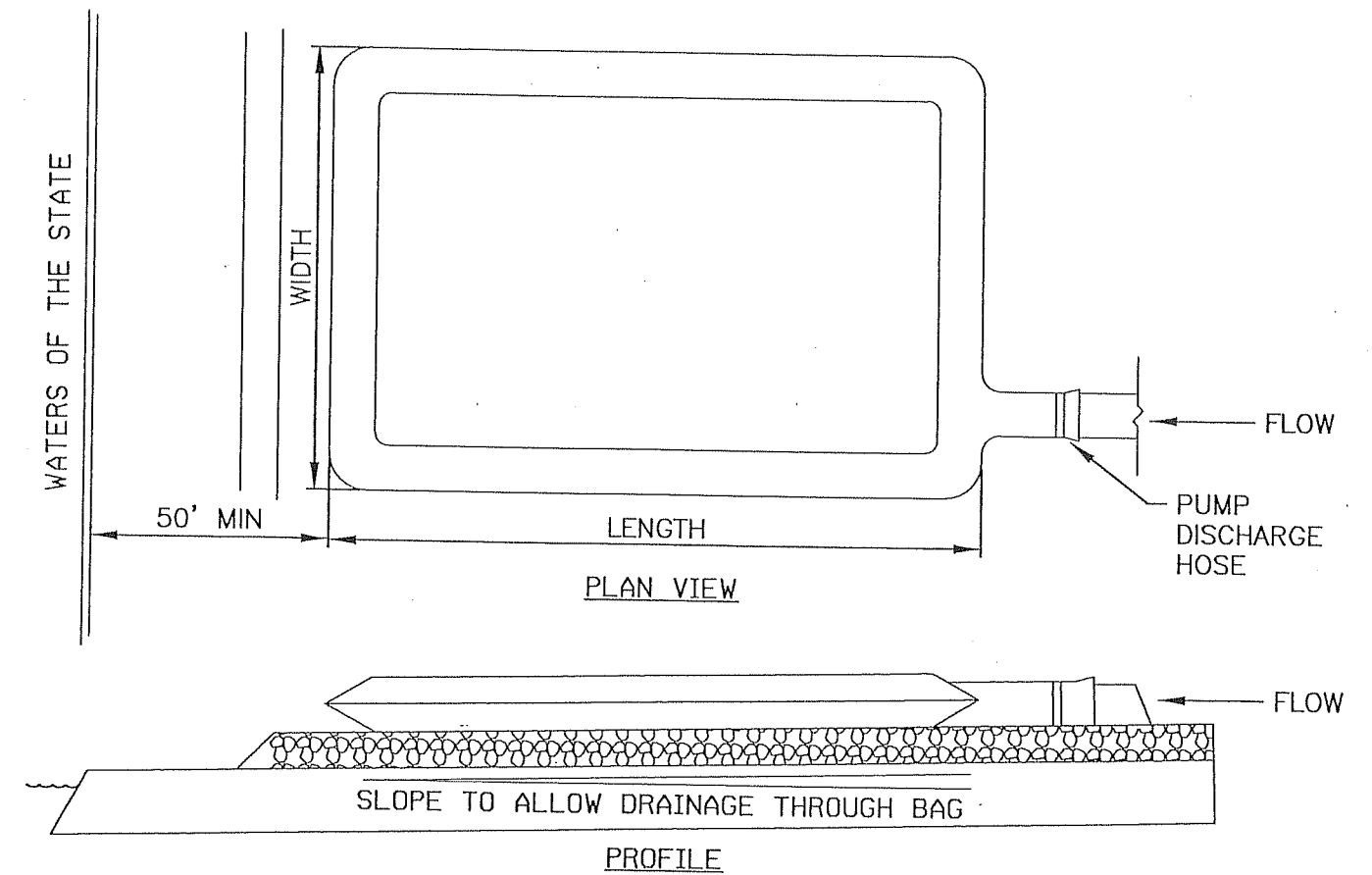
University of Vermont, Bachelor of Science, Civil Engineering, Magna Cum Laude - 2002 o Vermont Technical College, AS Civil and Environmental Engineering Technology - 1999

			2016 EPSC Plan Inspection Report			(Non-Jurisdictional and Low Risk Projects)
Project Name:			Date:		Time Since Last Storm:	
Inspector:			On-Site Coordinator: (signature required)			
Measure Inspected	Y	N	STA/Off	Corrective Action (CA) Required		Date CA Occurred
Boundary Limits						
Site boundary markers are up and visible						
Disturbance is only occurring within marked boundaries						
Disturbance Area Limit						
Only acreage listed on <i>Authorization to Discharge</i> is disturbed at one time						
Stabilized Construction Entrance/Exit						
Off site tracking of sediment prevented						
Sediment Barriers						
Measure has been installed properly and is functioning as designed						
Accumulated sediment < ½ height of measure						
Diversion						
Upland stormwater is diverted around the work area						
Channelized Runoff						
Check structures are in place, extend the width of the channel, and have capacity to retain sediment in the next storm event						
Channels are stable with no erosion						
Exposed Soils Stabilization						
Seed and mulch, and/or matting placed in accordance w/ permit requirements and/or Specifications						
Soil is seeded and mulched or covered in erosion matting within 48 hours of final grade						
Winter Stabilization						
After Sept. 15 all disturbed areas are seeded & mulched to 3” deep or covered w/ matting						
For ongoing construction, exposed soil is mulched prior to forecasted events						
Dewatering Treatment						
Measure is preventing a discharge of turbid water from leaving the site						
Accumulated sediment is removed to allow sufficient treatment						

* Additional Measures and Discharges shall be reported on the back side of this form.

			EPSC Plan Inspection Report (Non-Jurisdictional and Low Risk Projects)		
Measure Inspected	Y	N	STA/Off	Corrective Action	Date Taken
Additional Measures					
Discharges Noted					

* If there is a discharge of visibly discolored stormwater from the construction site to waters of the state, the On-Site Plan Coordinator shall inform the Resident Engineer and take corrective action and report the discharge in accordance with Section 6.1 of Permit 3-9020.

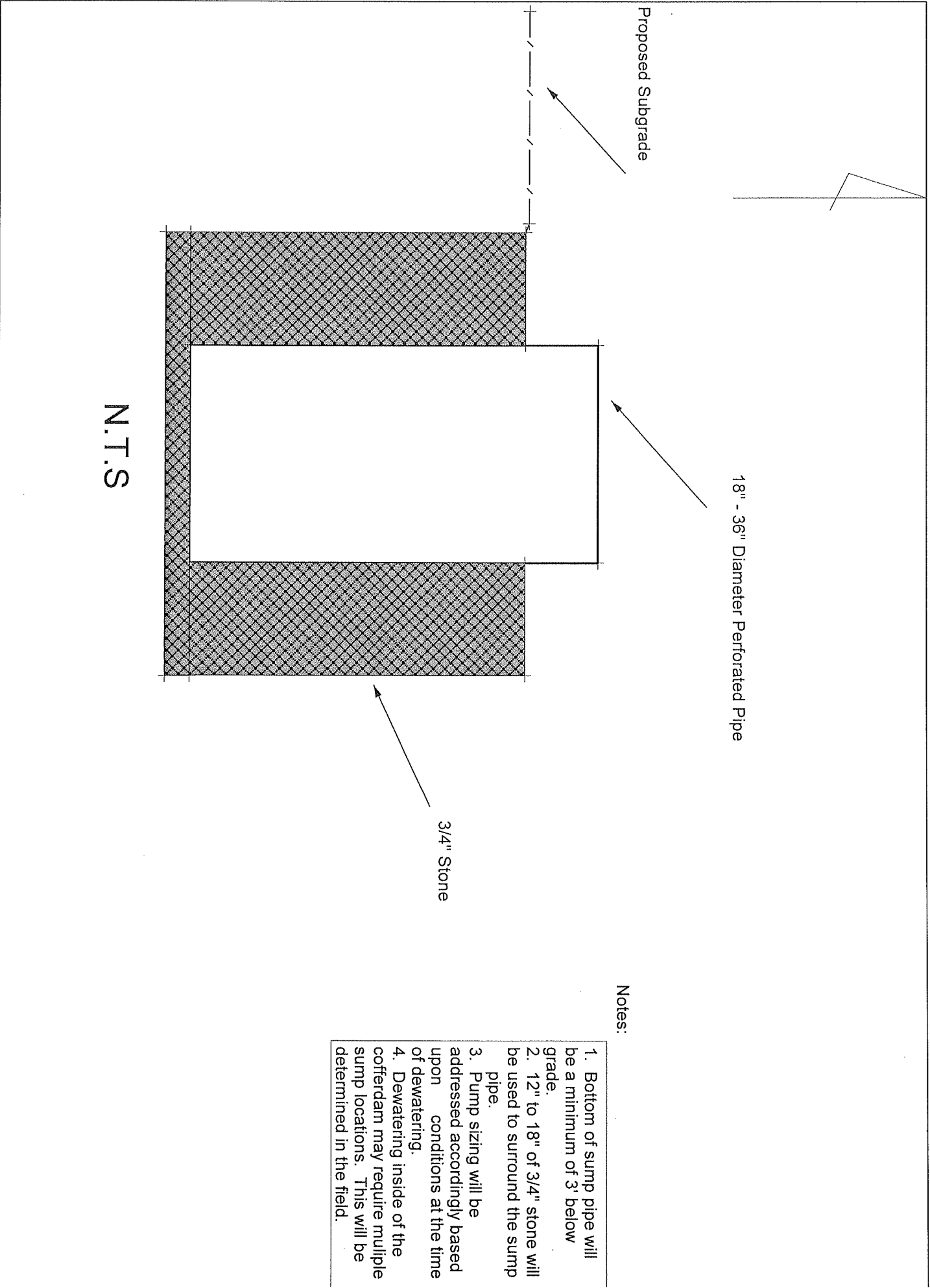


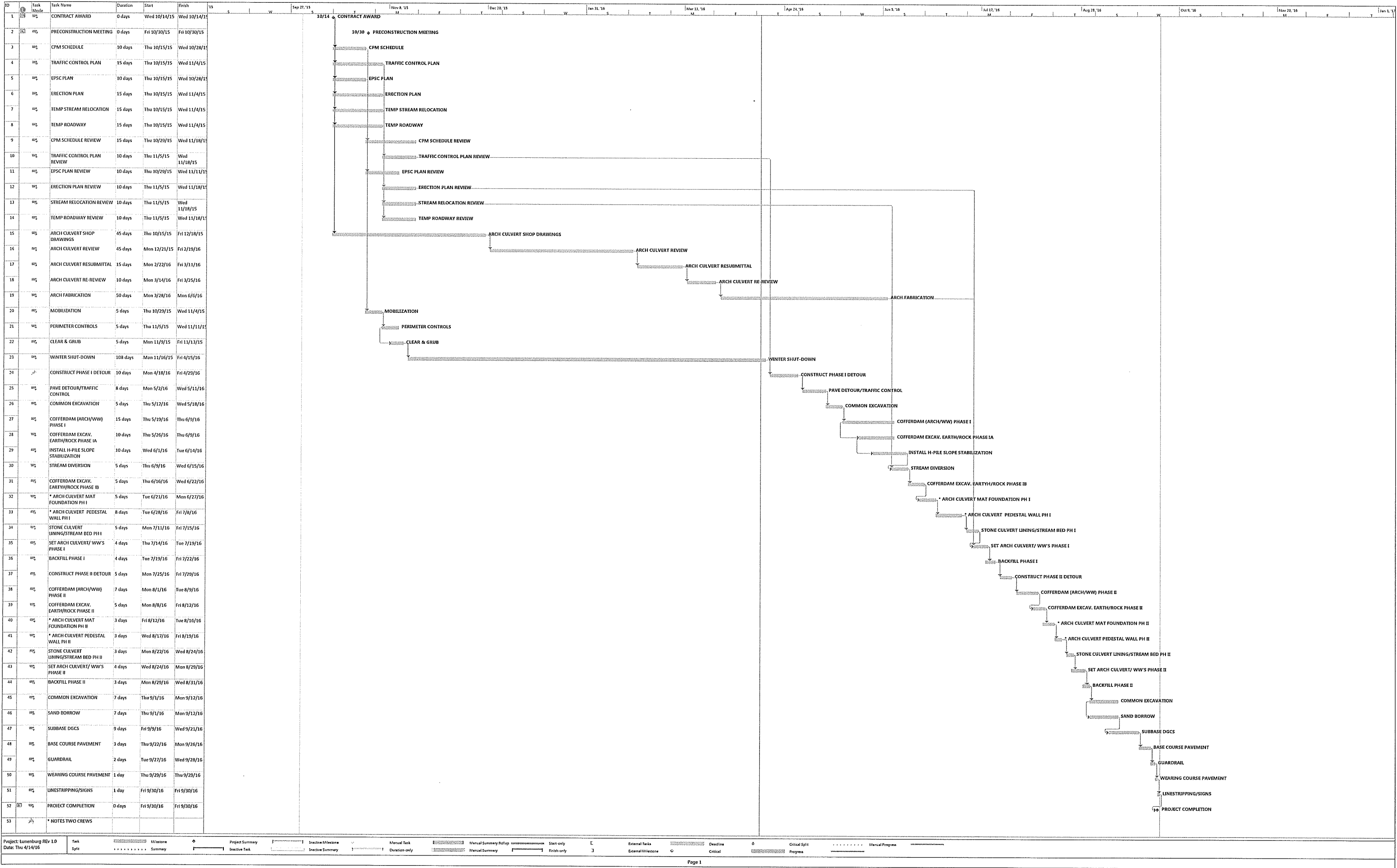
NOTE:

1. THE PRIMARY PURPOSE OF FILTER BAG IS TO RETAIN SILT, SAND AND FINES DURING DEWATERING OPERATIONS.
2. FILTER BAGS SHALL BE INSTALLED ON A VEGETATED SLOPE GRADED TO ALLOW INCOMING WATER TO FLOW THROUGH THE BAG.
3. FILTER BAGS MAY ALSO BE PLACED ON COARSE AGGREGATE, STONE, OR HAYBALES TO INCREASE FILTRATION EFFICIENCY.
4. FILTER BAGS SHALL BE LOCATED ON A MINIMUM OF 50' FROM WATERS OF THE STATE UNLESS OTHERWISE APPROVED BY THE ENGINEER.
5. THE NECK OF THE FILTER BAG SHALL BE STRAPPED TIGHTLY TO THE DISCHARGE HOSE.
6. FILTER BAG IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR ALLOW WATER TO PASS AT A REASONABLE RATE.
7. FILTER BAG SHALL BE DISPOSED OF AS APPROVED IN THE EPSC PLAN OR AS DIRECTED BY THE ENGINEER.

FILTER BAG

N.T.S.





EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REMOVAL OF BRIDGE 126 WHICH IS A 30" IRON PIPE EXTENDED AT THE OUTLET WITH A 4'-0"x4'-0" CONCRETE BOX CONSTRUCTED IN 1932 AND EXTENDED AT THE INLET WITH A 27"/28" LINER AND ITS HEADWALLS. BRIDGE 126 WILL BE REPLACED WITH A 116 FOOT PRECAST CONCRETE ARCH CULVERT WITH A 10 FOOT RISE, SPANNING 20 FEET OVER THE HUDSON BROOK, ON NEW FOOTINGS ALONG THE SAME ALIGNMENT. BRIDGE 126 IS LOCATED IN THE TOWN OF LUNENBURG, ON US ROUTE 2, APPROXIMATELY 0.90 MILES WEST OF THE LUNENBURG/GUILDHALL TOWN LINE.

NOTE: AREA OF DISTURBANCE INCLUDES LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, AS WELL AS WASTE, BORROW AND STAGING AREAS, AND OTHER EARTH DISTURBING ACTIVITIES WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS AS SHOWN ON THE ATTACHED EPSC PLAN.

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 1.82 ACRES. IT IS ANTICIPATED THAT THIS PROJECT WILL LAST 18 MONTHS.

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE AREA IS A SADDLE THAT IS MOSTLY WELL ESTABLISHED OPEN AREAS WITH SOME WOODED AREAS. US ROUTE 2, A PAVED DRIVEWAY, AND FOUR GRAVEL DRIVEWAYS ARE WITHIN THE PROJECT SITE. THERE ARE TWO RESIDENCES ON THE SOUTH SIDE OF THE SITE AND A RESIDENCE ON THE NORTHEAST SIDE OF THE PROJECT WITH GRASS AND TREE BUFFERS AT EACH RESIDENCE.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES

THE HUDSON BROOK IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE BROOK IS CLASSIFIED AS LOW-GRADIENT, VEGETATED WETLAND AT THE SITE. THE STREAM BED CONSISTS OF SILTS AND FINE SAND WITH OCCASIONAL SMALL POCKETS OF FINE GRAVEL. THE TRIBUTARY AREA AT THE CULVERT CROSSING IS 3.2 SQUARE MILES. DUE TO THE NATURE OF THE SURROUNDING TERRAIN THE PROJECT SITE COULD RECEIVE RUNOFF WATER FROM A FEW NEARBY SLOPES.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF PINE AND HARDWOOD TREES, UNDERGROWTH, AND BRUSH. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY REPLACEMENT OF THE EXISTING CULVERT. UPON PROJECT COMPLETION, THE CHANNEL WILL BE ARMORED WITH ITEM 900.608, "SPECIAL PROVISION (STONE FILL, STREAMBED MATERIAL)" AS SPECIFIED ON THE PLANS. SLOPES WILL BE ARMORED WITH STONE FILL, TYPE II AND III AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF ESSEX, VERMONT. SOILS ON THE PROJECT SITE ARE KINSMAN SAND, 0 TO 3% SLOPES, "K FACTOR" = 0.17. THE SOIL IS NOT CONSIDERED HIGHLY ERODIBLE.

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING:
0.0-0.23 = LOW EROSION POTENTIAL
0.24-0.36 = MODERATE EROSION POTENTIAL
0.37 AND HIGHER = HIGH EROSION POTENTIAL

1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO
HISTORICAL OR ARCHEOLOGICAL AREAS: YES, FOUR ARCHAEOLOGICAL AREAS IN EACH QUADRANT
PRIME AGRICULTURAL LAND: YES, PRIME(b) ON WEST SIDE OF US ROUTE 2
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: HUDSON BROOK
WETLANDS: YES, UPSTREAM OF THE CULVERT

1.3 RISK EVALUATION

THIS PROJECT FALLS UNDER THE JURISDICTION OF GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES FOR LOW RISK PROJECTS. ANY MODIFICATIONS TO THE PROJECT THAT INCREASE THE RISK TO ENVIRONMENTAL RESOURCES SHALL BE EVALUATED IN ACCORDANCE WITH THE PERMIT REQUIREMENTS. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE PRINCIPLES OUTLINED IN THIS NARRATIVE CONSIST OF APPLYING MEASURES THROUGHOUT CONSTRUCTION OF THE PROJECT IN ORDER TO MINIMIZE SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM

WATER CONTROLS AND OTHER POLLUTION PREVENTION PRACTICES. THEY HAVE BEEN PROPOSED BY THE DESIGNER AS A BASIS FOR PROTECTING RESOURCES AND WILL NEED TO BE BUILT UPON BASED ON THE SPECIFIC MEANS AND METHODS OF THE CONTRACTOR. REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING AND SUBMITTING AN EPSC PLAN IN ACCORDANCE WITH SECTION 652 OF THE SPECIAL PROVISIONS.

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

1.4.1 MARK SITE BOUNDARIES

SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED.

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES. BECAUSE THIS PROJECT FALLS UNDER THE CGP 3-9020, BARRIER FENCE SHALL BE USED INSTEAD OF PROJECT DEMARCATION FENCE WITHIN 100 FEET OF A WATER RESOURCE (STREAM, BROOK, LAKE, POND, WETLAND, ETC).

1.4.2 LIMIT DISTURBANCE AREA

PREVENTING INITIAL SOIL EROSION BY MINIMIZING THE EXPOSED AREA IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. EARTH DISTURBANCE CAN BE MINIMIZED THROUGH CONSTRUCTION PHASING BY ONLY OPENING UP EARTH AS NECESSARY. THIS CAN LIMIT THE AREA THAT WILL BE DISTURBED AND EXPOSED TO EROSION. EMPLOY TEMPORARY CONSTRUCTION STABILIZATION PRACTICES IN INCREMENTAL STAGES AS PHASES CHANGE. FOR PROJECTS WHICH FALL UNDER THE CONSTRUCTION GENERAL PERMIT, ONLY THE ACREAGE LISTED ON THE PERMIT AUTHORIZATION MAY BE EXPOSED AT ANY GIVEN TIME.

MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE ESTABLISHED WHEREVER POSSIBLE.

1.4.3 SITE ENTRANCE/EXIT STABILIZATION

TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTORS PROGRESS SCHEDULE.

STABILIZED CONSTRUCTION ENTRANCES ARE NOT ANTICIPATED ON THIS PROJECT. THE EXISTING ROADWAY WILL BE UTILIZED TO ACCESS THE BRIDGE.

1.4.4 INSTALL SEDIMENT BARRIERS

SEDIMENT BARRIERS SHALL BE UTILIZED TO INTERCEPT RUNOFF AND ALLOW SUSPENDED SEDIMENT TO SETTLE OUT. THEY SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK.

SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN. BECAUSE THIS PROJECT FALLS UNDER THE CGP 3-9020, WOVEN WIRE REINFORCED SILT FENCE SHALL BE USED INSTEAD OF SILT FENCE WITHIN 100 FEET UPSLOPE OF RECEIVING WATERS.

1.4.5 DIVERT UPLAND RUNOFF

DIVERSIONARY MEASURES SHALL BE USED TO INTERCEPT RUNOFF FROM ABOVE THE CONSTRUCTION AND DIRECT IT AROUND THE DISTURBED AREA SO THAT CLEAN WATER DOES NOT BECOME MUDDIED WHILE TRAVELING OVER EXPOSED SOILS ON THE CONSTRUCTION SITE.

THIS PROJECT WILL HAVE A PAVED DETOUR. CONSTRUCTION VEHICLES WILL BE ABLE TO UTILIZE THE EXISTING ROADWAY. THEREFORE IT IS NOT ANTICIPATED THAT DIVERSION MEASURES WILL BE NECESSARY.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSION POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS.

STONE CHECK DAMS WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN, AT A MINIMUM.

1.4.7 CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH PERMIT CONDITIONS.

PERMANENT STORMWATER TREATMENT DEVICES ARE NOT ANTICIPATED ON THIS PROJECT.

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE OR IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT 3-9020 AUTHORIZATION.

SURFACE ROUGHENING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, SHALL BE UTILIZED ON A REGULAR BASIS. BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3.

THE FORECAST OF RAINFALL EVENTS SHALL TRIGGER IMMEDIATE PROTECTION OF EXPOSED SOILS.

TEMPORARY EROSION CONTROL MATTING WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN, AT A MINIMUM.

1.4.9 WINTER STABILIZATION

VARIOUS MEASURES SPECIFIC TO WINTER MAY BE NECESSARY SHOULD THE PROJECT EXTEND INTO WINTER (OCTOBER 15 THROUGH APRIL 15). REFER TO THE LOW RISK SITE HANDBOOK FOR GUIDANCE.

1.4.10 STABILIZE SOIL AT FINAL GRADE

EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

SEED, MULCH, FERTILIZER AND LIME SHALL BE USED TO ESTABLISH PERMANENT VEGETATION. FOR SLOPES STEEPER THAN 1:3, BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED INSTEAD OF MULCH. STONE FILL SHALL BE USED TO STABILIZE ROADWAY SLOPES AND THE CHANNEL AS SHOWN ON THE PLANS.

1.4.11 DE-WATERING ACTIVITIES

DISCHARGE FROM DEWATERING ACTIVITIES THAT FLOWS OFF OF THE CONSTRUCTION SITE MUST NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF THE VERMONT WATER QUALITY STANDARDS.

TREATMENT OF DEWATERING COFFERDAM IS ANTICIPATED. THE SPECIFIC MEANS FOR TREATMENT OF DISCHARGE SHALL BE PROVIDED BY THE CONTRACTOR.

1.4.12 INSPECT YOUR SITE

INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS OR CONSTRUCTION GENERAL PERMIT AUTHORIZATION STIPULATIONS.

1.5 SEQUENCE AND STAGING

THIS SECTION WILL BE DEVELOPED BY THE CONTRACTOR USING THE GUIDANCE OUTLINED IN THE VTRANS EPSC PLAN CONTRACTOR CHECKLIST.

1.5.1 CONSTRUCTION SEQUENCE

1.5.2 OFF-SITE ACTIVITIES

IN ADDITION TO THE CONTRACTOR CHECKLIST ANY ACTIVITIES OUTSIDE THE CONSTRUCTION LIMITS SHALL FOLLOW SUBSECTIONS 105.25- 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

1.5.3 UPDATES

EPSC LAYOUT PLAN SYMBOLOGY

EPSC MEASURES

- ONNCOONNCOONNO FILTER CURTAIN
- SILT FENCE
- SILT FENCE WOVEN WIRE
- CHECK DAM
- DISTURBED AREAS REQUIRING RE-VEGETATION
- EROSION MATTING

ENVIRONMENTAL RESOURCES

- WETLAND BOUNDARY
- RIPARIAN BUFFER ZONE
- WETLAND BUFFER ZONE
- SOIL TYPE BOUNDARY
- THREATENED & ENDANGERED SPECIES
- HAZARDOUS WASTE AREA
- AGRICULTURAL LAND
- FISH & WILDLIFE HABITAT
- FLOOD PLAIN
- ORDINARY HIGH WATER (OHW)
- STORM WATER
- USDA FOREST SERVICE LANDS
- WILDLIFE HABITAT SUIT/CONN

ARCHEOLOGICAL & HISTORIC

- ARCHEOLOGICAL BOUNDARY
- HISTORIC DISTRICT BOUNDARY
- HISTORIC AREA
- HISTORIC STRUCTURE

PROJECT NUMBER: NH CULV(27)

FILE NAME: 11b294/cos/z11b294erodet.dgn PLOT DATE: 8/6/2015
PROJECT LEADER: J. BYATT DRAWN BY: M. HALEY
DESIGNED BY: M. HALEY CHECKED BY: P. SHEDD
EROSION CONTROL NARRATIVE SHEET 62 OF 74



SOIL INFORMATION: KINSMAN SAND
K = 0.17, NOT HIGHLY ERODIBLE
HYDROLOGIC SOIL GROUP: C

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K = 0.17, NOT HIGHLY ERODIBLE
HYDROLOGIC SOIL GROUP: C

0 20 40
(SCALE 1" = 20')

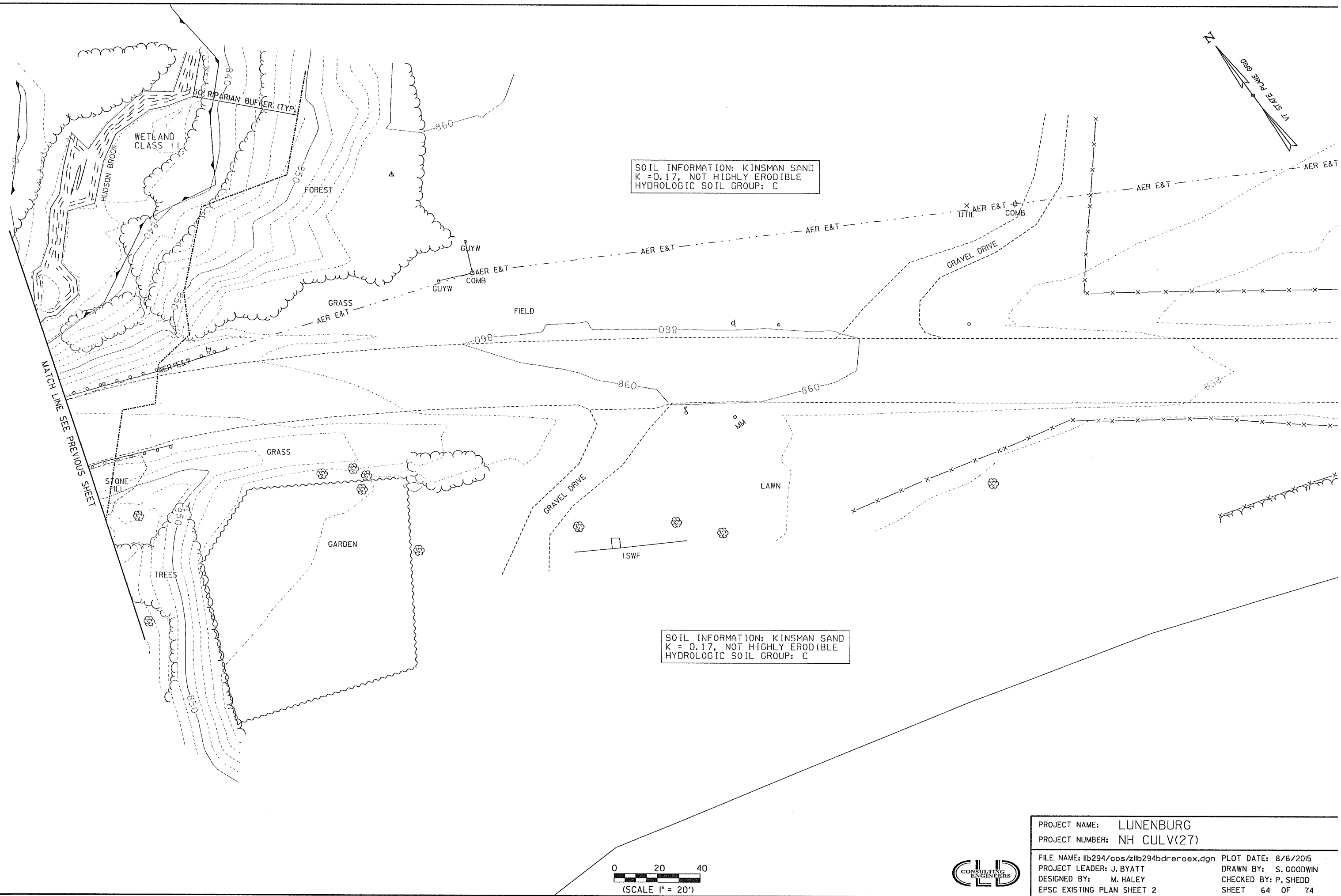


PROJECT NAME: LUNENBURG
PROJECT NUMBER: NH CULV(27)

FILE NAME: \\lb294\cos\zllb294bdreroex.dgn PLOT DATE: 8/6/2015
PROJECT LEADER: J. BYATT DRAWN BY: S. GOODWIN
DESIGNED BY: M. HALEY CHECKED BY: P. SHEDD
EPSC EXISTING PLAN SHEET 1 SHEET 63 OF 74

CLD 12-0106 MODEL: 1.01

CID 12-0106 MODEL 1.02



SOIL INFORMATION: KINSMAN SAND
K = 0.17, NOT HIGHLY ERODIBLE
HYDROLOGIC SOIL GROUP: C

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0 20 40
(SCALE 1" = 20')

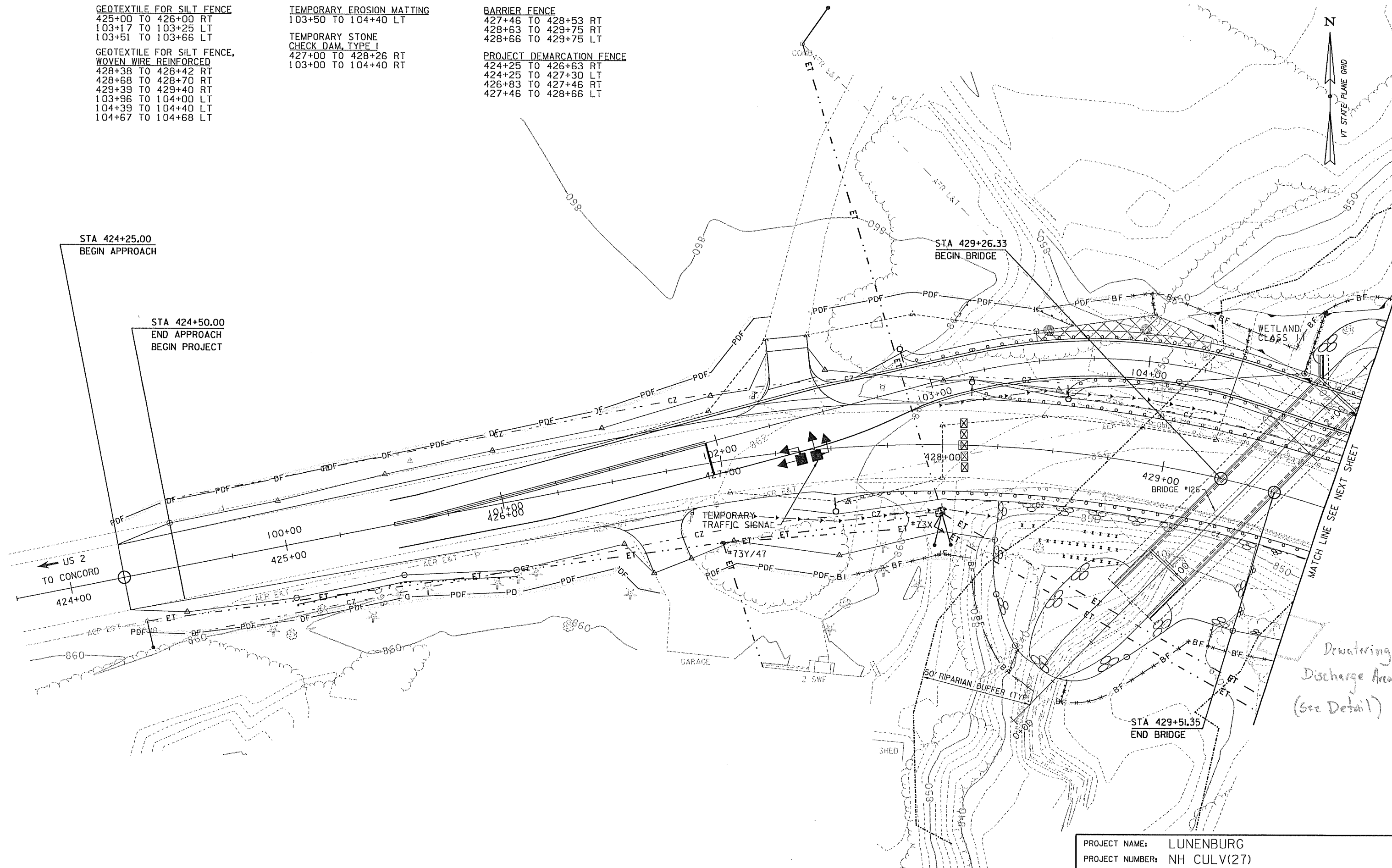


PROJECT NAME:	LUNENBURG	PLOT DATE:	8/6/2015
PROJECT NUMBER:	NH CULV(27)	DRAWN BY:	S. GOODWIN
FILE NAME:	lib294/cos/zlib294bdrercoex.dgn	CHECKED BY:	P. SHEDD
PROJECT LEADER:	J. BYATT	SHEET	64 OF 74
DESIGNED BY:	M. HALEY		
EPSC EXISTING PLAN SHEET 2			

GEOTEXTILE FOR SILT FENCE
 425+00 TO 426+00 RT
 103+17 TO 103+25 LT
 103+51 TO 103+66 LT
 GEOTEXTILE FOR SILT FENCE,
 WOVEN WIRE REINFORCED
 428+38 TO 428+42 RT
 428+68 TO 428+70 RT
 429+39 TO 429+40 RT
 103+96 TO 104+00 LT
 104+39 TO 104+40 LT
 104+67 TO 104+68 LT

TEMPORARY EROSION MATTING
 103+50 TO 104+40 LT
 TEMPORARY STONE
 CHECK DAM, TYPE I
 427+00 TO 428+26 RT
 103+00 TO 104+40 RT

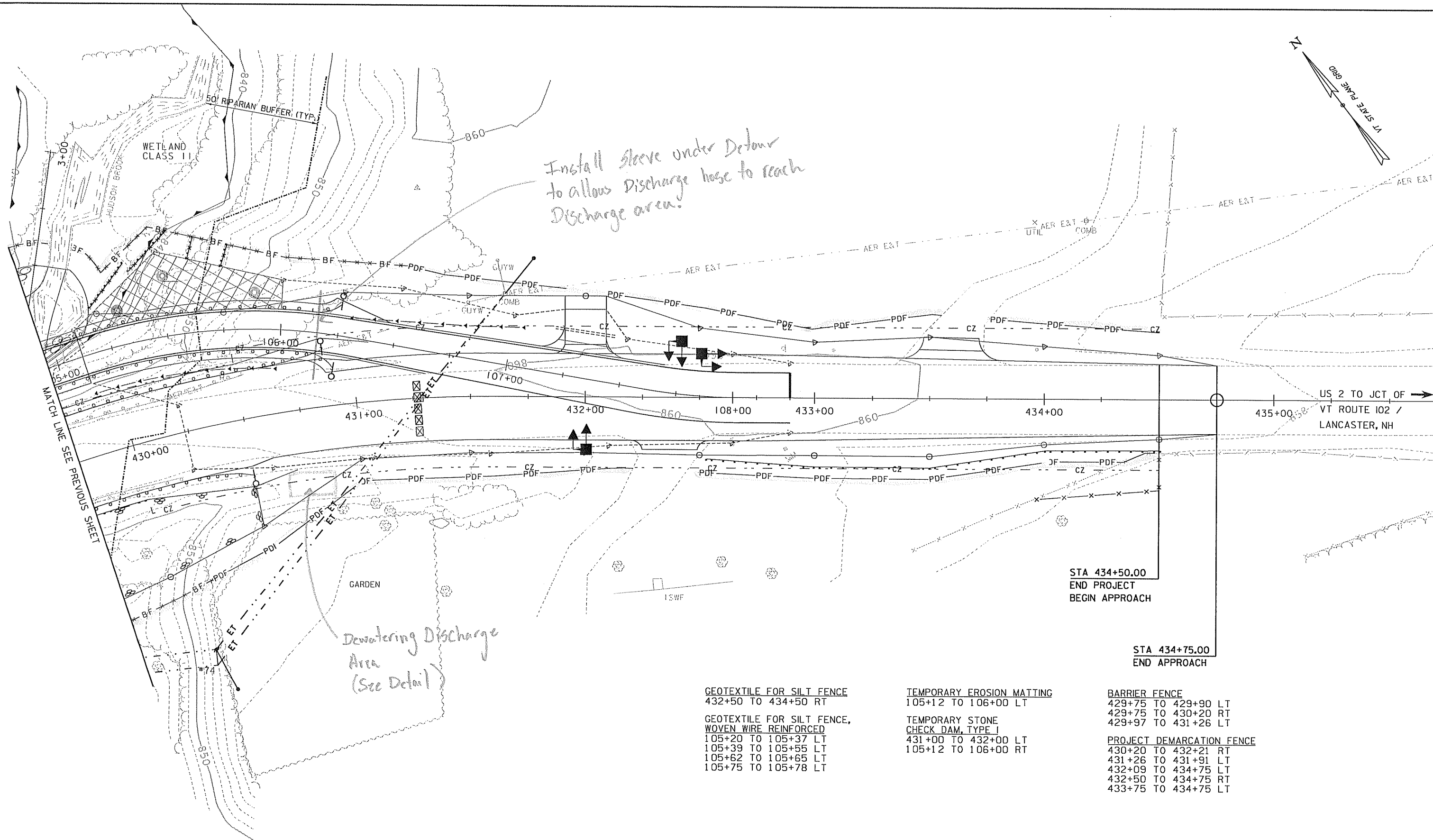
BARRIER FENCE
 427+46 TO 428+53 RT
 428+63 TO 429+75 RT
 428+66 TO 429+75 LT
 PROJECT DEMARCATION FENCE
 424+25 TO 426+63 RT
 424+25 TO 427+30 LT
 426+83 TO 427+46 RT
 427+46 TO 428+66 LT



0 20 40
 (SCALE 1" = 20')



PROJECT NAME: LUNENBURG	
PROJECT NUMBER: NH CULV(27)	
FILE NAME: l1b294/cos/z11b294bdrrocn.dgn	PLOT DATE: 8/6/2015
PROJECT LEADER: J. BYATT	DRAWN BY: S. GOODWIN
DESIGNED BY: M. HALEY	CHECKED BY: P. SHEDD
EPSC CONSTRUCTION SHEET I	SHEET 65 OF 74



GEOTEXTILE FOR SILT FENCE
432+50 TO 434+50 RT

GEOTEXTILE FOR SILT FENCE,
WOVEN WIRE REINFORCED
105+20 TO 105+37 LT
105+39 TO 105+55 LT
105+62 TO 105+65 LT
105+75 TO 105+78 LT

TEMPORARY EROSION MATTING
105+12 TO 106+00 LT

TEMPORARY STONE
CHECK DAM, TYPE I
431+00 TO 432+00 LT
105+12 TO 106+00 RT

BARRIER FENCE
429+75 TO 429+90 LT
429+75 TO 430+20 RT
429+97 TO 431+26 LT

PROJECT DEMARCATION FENCE
430+20 TO 432+21 RT
431+26 TO 431+91 LT
432+09 TO 434+75 LT
432+50 TO 434+75 RT
433+75 TO 434+75 LT

0 20 40
(SCALE 1" = 20')



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EPSC CONSTRUCTION PLAN SHEET 2 SHEET 66 OF 74

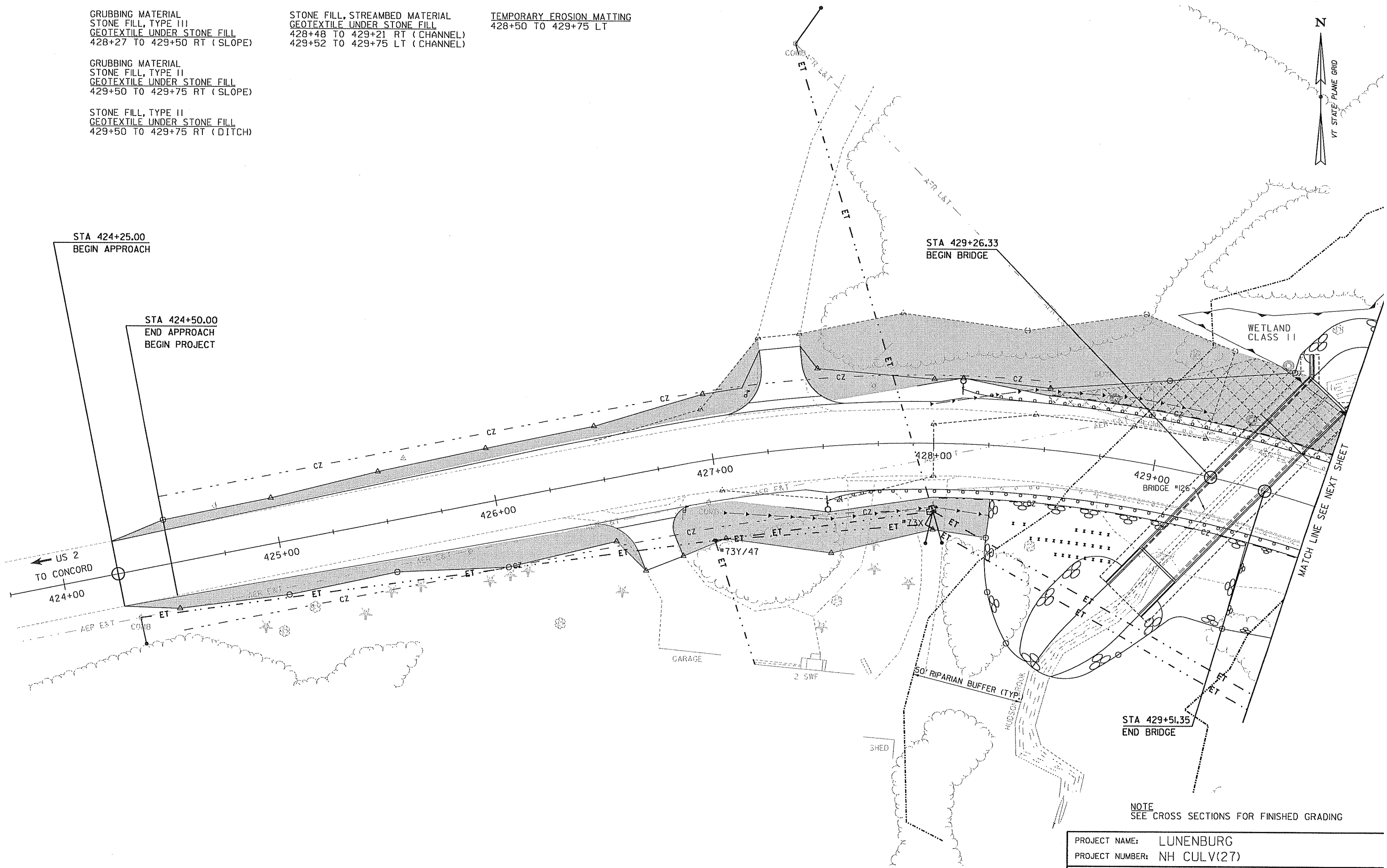
GRUBBING MATERIAL
STONE FILL, TYPE III
GEOTEXTILE UNDER STONE FILL
428+27 TO 429+50 RT (SLOPE)

GRUBBING MATERIAL
STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
429+50 TO 429+75 RT (SLOPE)

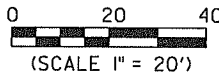
STONE FILL, STREAMBED MATERIAL
GEOTEXTILE UNDER STONE FILL
428+48 TO 429+21 RT (CHANNEL)
429+52 TO 429+75 LT (CHANNEL)

TEMPORARY EROSION MATTING
428+50 TO 429+75 LT

STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
429+50 TO 429+75 RT (DITCH)



NOTE
SEE CROSS SECTIONS FOR FINISHED GRADING



PROJECT NAME:	LUNENBURG	PLOT DATE:	8/6/2015
PROJECT NUMBER:	NH CULV(27)	DRAWN BY:	S. GOODWIN
FILE NAME:	lib294/cos/zlib294bdrerofl.dgn	CHECKED BY:	P. SHEDD
PROJECT LEADER:	J. BYATT		
DESIGNED BY:	M. HALEY		
EPSC FINAL PLAN SHEET 1		SHEET	67 OF 74

CLD 12-006 MODEL: L01

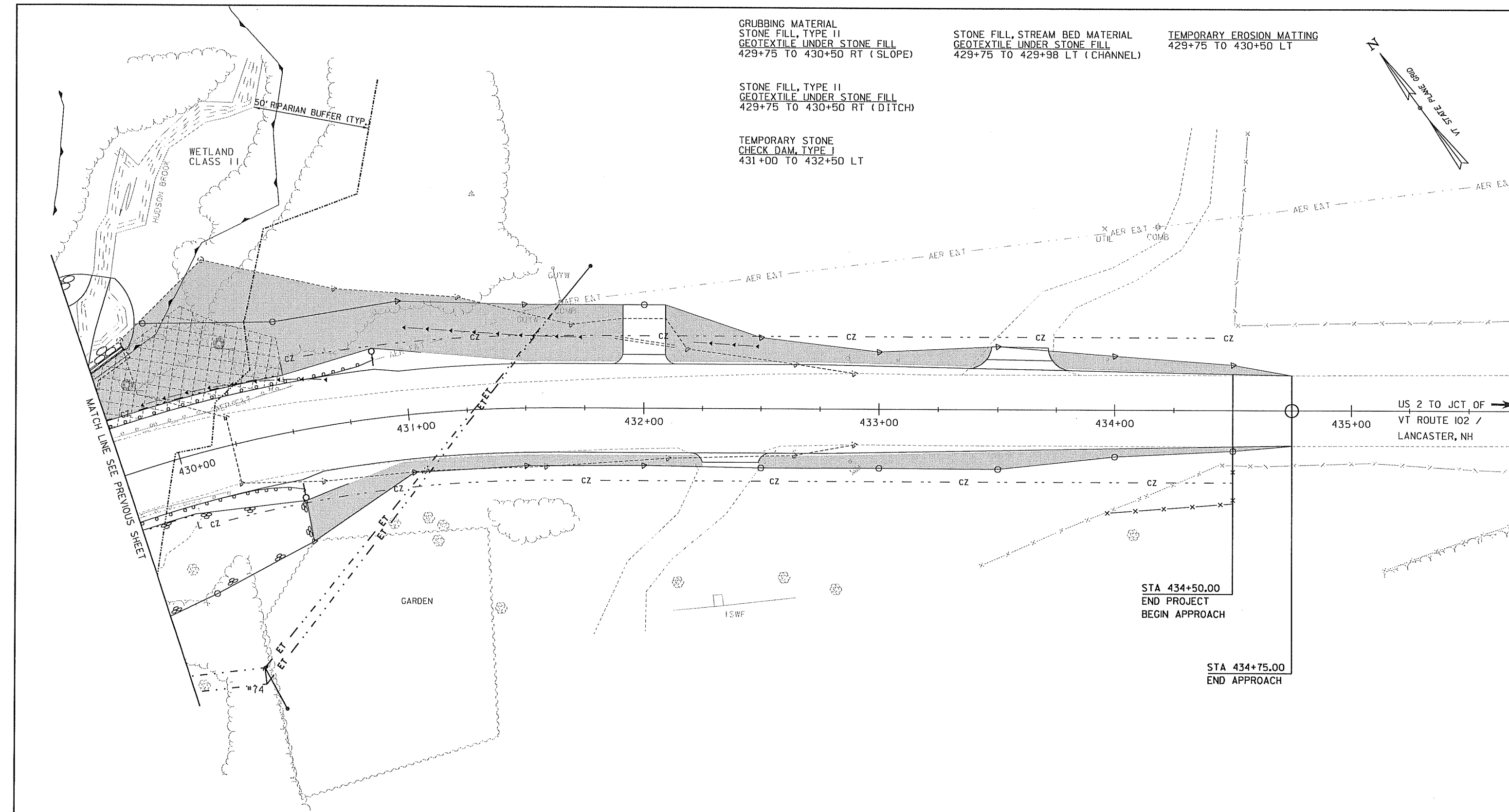
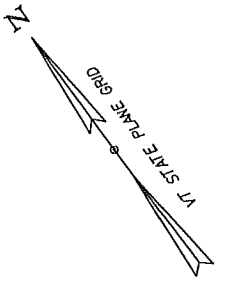
GRUBBING MATERIAL
STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
429+75 TO 430+50 RT (SLOPE)

STONE FILL, STREAM BED MATERIAL
GEOTEXTILE UNDER STONE FILL
429+75 TO 429+98 LT (CHANNEL)

TEMPORARY EROSION MATTING
429+75 TO 430+50 LT

STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
429+75 TO 430+50 RT (DITCH)

TEMPORARY STONE
CHECK DAM, TYPE I
431+00 TO 432+50 LT



STA 434+50.00
END PROJECT
BEGIN APPROACH

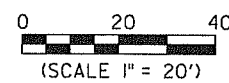
STA 434+75.00
END APPROACH

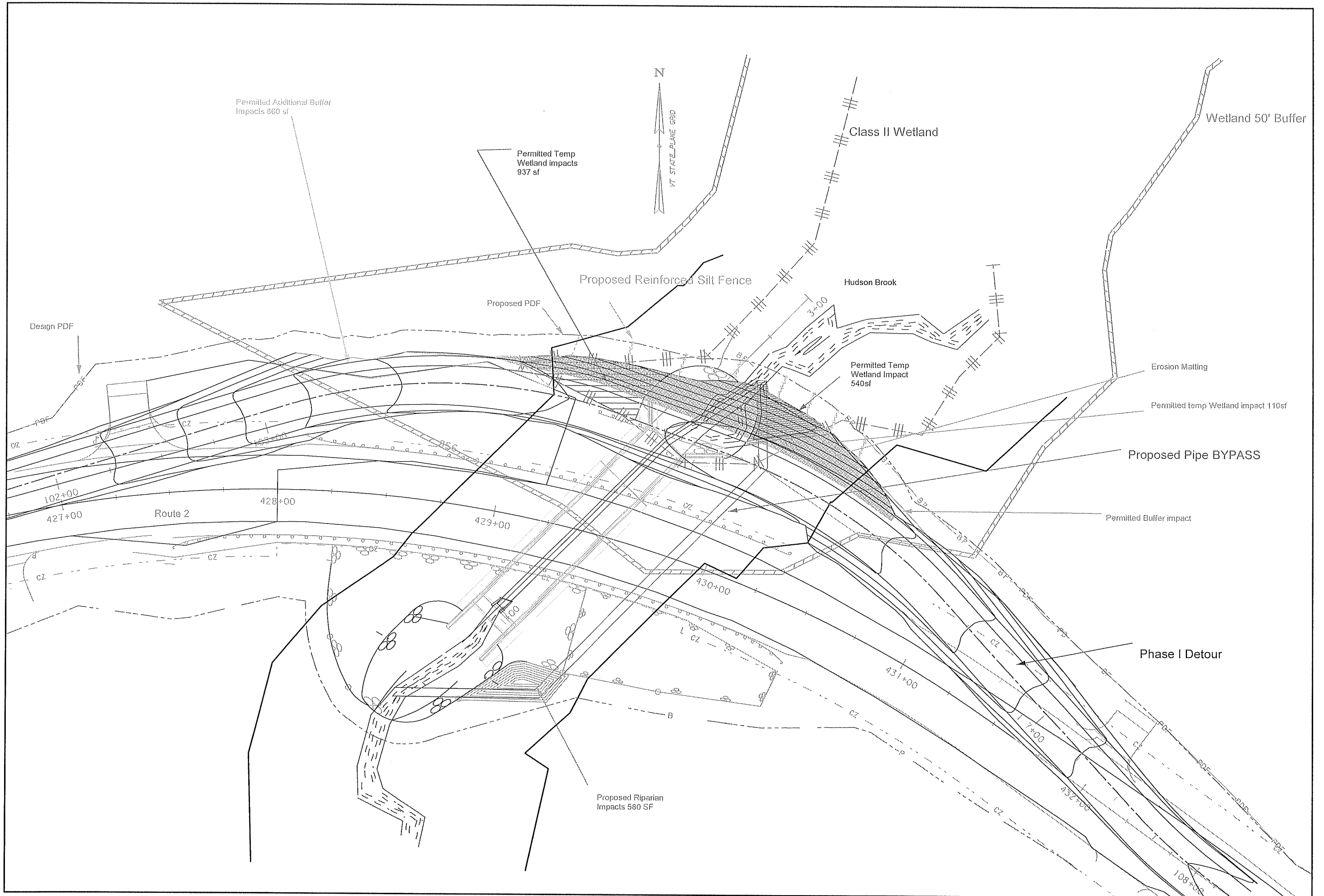
NOTE
SEE CROSS SECTIONS FOR FINISHED GRADING

PROJECT NAME: LUNENBURG
PROJECT NUMBER: NH CULV(27)

FILE NAME: \\b294\cos\z1b294bdrerofl.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: M. HALEY
EPSC FINAL PLAN SHEET 2

PLOT DATE: 8/6/2015
DRAWN BY: S. GOODWIN
CHECKED BY: P. SHEDD
SHEET 68 OF 74





VAOT LOW GROW/FINE FESCUE MIX						
WEIGHT	LBS/AC		NAME	LATIN NAME	GERM	PURITY
	BROADCAST	HYDROSEED				
38%	57	95	CREeping RED FESCUE	FESTUCA RUBRA VAR. RUBRA	90%	98%
29%	43.5	72.5	HARD FESCUE	FESTUCA LONGIFOLIA	85%	95%
15%	22.5	37.5	CHEWINGS FESCUE	FESTUCA RUBRA VAR. COMMUTATA	87%	95%
15%	22.5	37.5	ANNUAL RYEGRASS	LOLIUM MULTIFLORUM	90%	95%
3%	4.5	7.5	INERTS			
100%	150	250				

VAOT RURAL AREA MIX						
WEIGHT	LBS/AC		NAME	LATIN NAME	GERM	PURITY
	BROADCAST	HYDROSEED				
37.5%	22.5	45	CREeping RED FESCUE	FESTUCA RUBRA VAR. RUBRA	85%	98%
37.5%	22.5	45	TALL FESCUE	FESTUCA ARUNDINACEA	90%	95%
5.0%	3	6	RED TOP	AGROSTIS GIGANTEA	90%	95%
15.0%	9	18	WHITE FIELD CLOVER	TRIFOLIUM REPENS	85%	98%
5.0%	3	6	ANNUAL RYE GRASS	LOLIUM MULTIFLORUM	85%	95%
100%	60	120				

GENERAL AMENDMENT GUIDANCE		
FERTILIZER	LIME	
10/20/10	AG LIME	PELLITIZED
500 LBS/AC	2 TONS/AC	1 TONS/AC

CONSTRUCTION GUIDANCE

1. SEED MIX: THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER ON WHICH SEED MIX TO USE.
2. SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
3. ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
4. FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER.
5. HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
6. HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED PROPOSED FOR USE WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED.
7. TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES	TURF ESTABLISHMENT
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 651 FOR SEED (PAY ITEM 651.15)	REVISIONS
	JANUARY 12, 2015 WHF

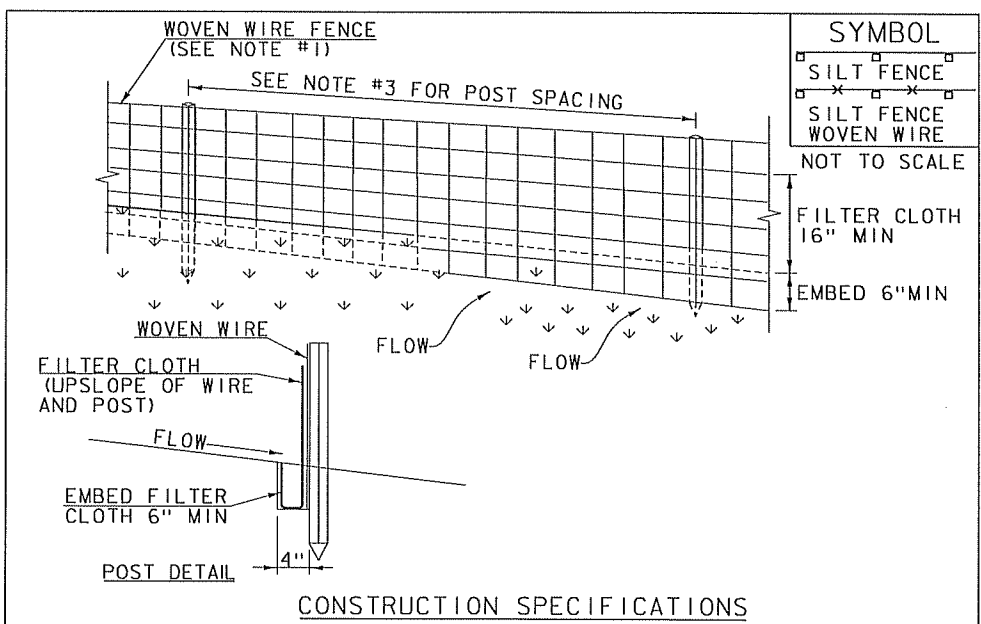
VAOT URBAN LAWN MIX						
WEIGHT	LBS/AC		NAME	LATIN NAME	GERM	PURITY
	BROADCAST	HYDROSEED				
42.5%	34	68	CREeping RED FESCUE	FESTUCA RUBRA X RUBRA	85%	98%
20.0%	16	32	PERENNIAL RYE GRASS	LOLIUM PERENNE	90%	95%
32.5%	26	52	KENTUCKY BLUE GRASS	POA PRATENSIS	85%	85%
5.0%	4	8	ANNUAL RYE GRASS	LOLIUM MULTIFLORUM	85%	95%
100%	80	160				

GENERAL AMENDMENT GUIDANCE		
FERTILIZER	LIME	
10/20/10	AG LIME	PELLITIZED
500 LBS/AC	2 TONS/AC	1 TONS/AC

CONSTRUCTION GUIDANCE

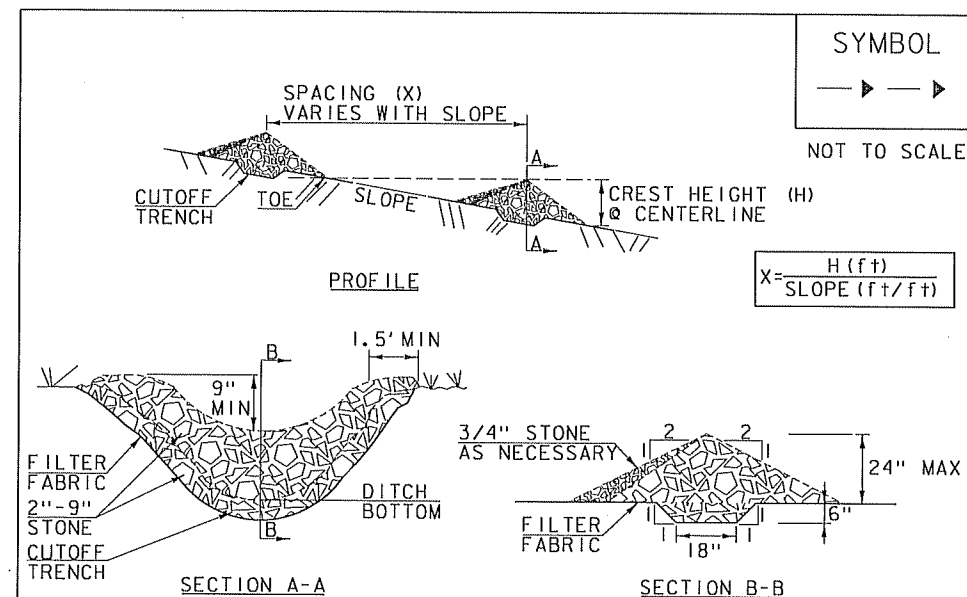
1. SEED MIX: THE URBAN AREA MIX SHALL NOT BE USED IN WETLANDS OR ANY WATERS OF THE STATE OF VERMONT.
2. SEED MIX: USE ONLY AS INDICATED IN THE PLANS.
3. SEED MIX: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
4. FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER.
5. HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
6. HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED.
7. TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES	TURF ESTABLISHMENT
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 651 FOR SEED (PAY ITEM 651.15)	REVISIONS
	JANUARY 22, 2015 WHF



ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC ORIGINALLY DEVELOPED BY USDA-NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION	SILT FENCE
NOTES: REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.	
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 AND AS SHOWN IN THE PLANS FOR GEOTEXTILE FOR SILT FENCE (PAY ITEM 649.51) OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515).	
REVISIONS	
MARCH 21, 2008	WHF
DECEMBER 11, 2008	WHF
JANUARY 13, 2009	WHF

PROJECT NAME: LUNENBURG	PLOT DATE: 8/6/2015
PROJECT NUMBER: NH CULV(27)	DRAWN BY: M. HALEY
FILE NAME: 11b294/cos/11b294e0det.dgn	CHECKED BY: P. SHEDD
PROJECT LEADER: J. BYATT	SHEET 69 OF 74
DESIGNED BY: M. HALEY	
EPSC DETAILS I	



1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION.
2. CHECK DAMS SHALL BE SPACED SO THAT THE ELEVATION OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.
3. 3/4" FILTERING STONE MAY BE ADDED TO THE FACE OF THE CHECK DAM AS NECESSARY.
4. EXTEND THE STONE A MINIMUM OF 1.5' BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
5. PROTECT CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
6. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.
7. MAXIMUM DRAINAGE AREA 2 ACRES.

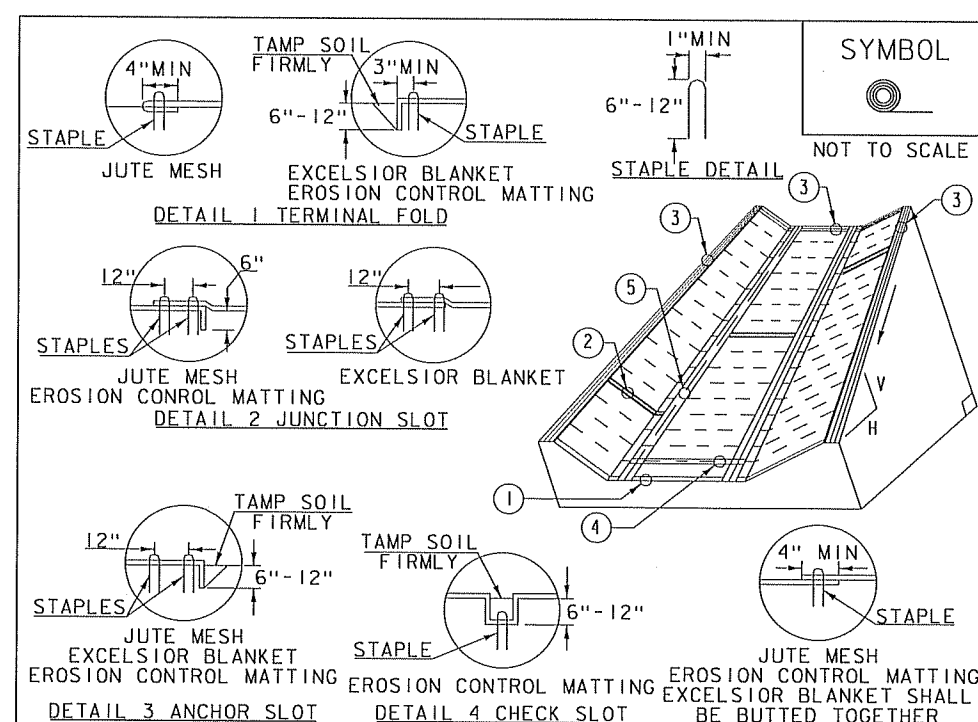
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

CHECK DAM

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR TEMPORARY STONE CHECK DAM, TYPE 1 (PAY ITEM 653.25)

REVISIONS	
MARCH 21, 2008	WHF
JANUARY 8, 2009	WHF



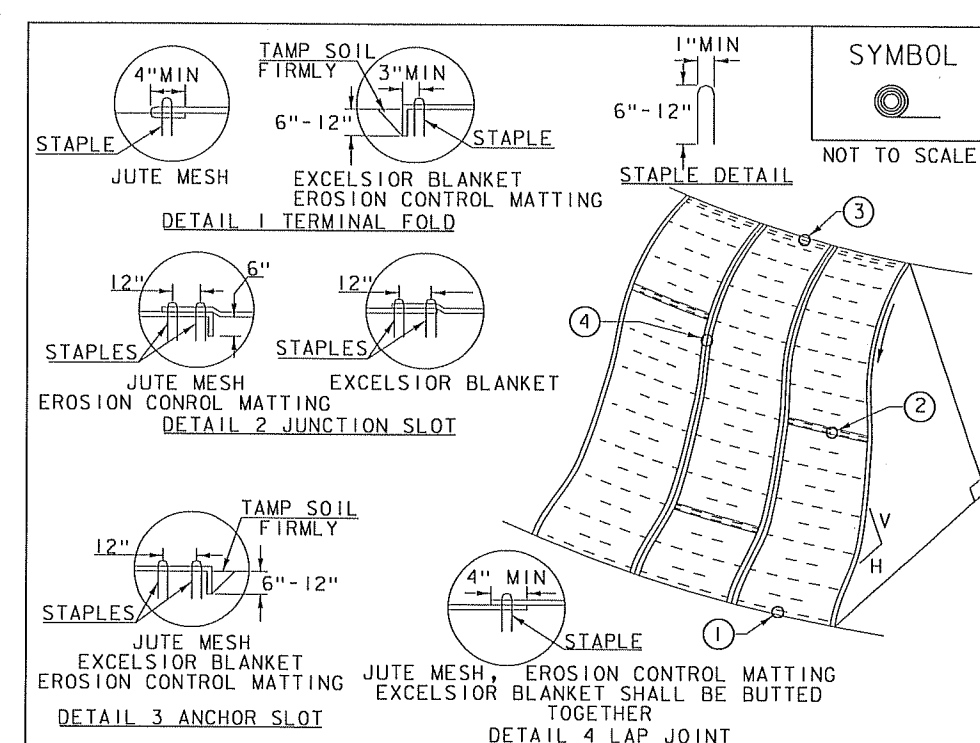
1. EROSION MATTING, CHECK SLOTS, SHALL BE SPACED IN DITCH CHANNEL SO THAT ONE OCCURS WITHIN EACH 50' ON SLOPES OF MORE THAN 4% AND LESS THAN 6%. ON SLOPES OF 6% OR MORE, THEY SHALL BE SPACED SO THAT ONE OCCURS WITHIN EACH 25'.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4' X 225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4' X 150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ROLLED EROSION CONTROL PRODUCT (RECP) DITCH

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) OR PERMANENT EROSION MATTING (PAY ITEM 653.21).

REVISIONS	
MARCH 8, 2007	JMF
APRIL 16, 2007	WHF
JANUARY 13, 2009	WHF



1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4' X 225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4' X 150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

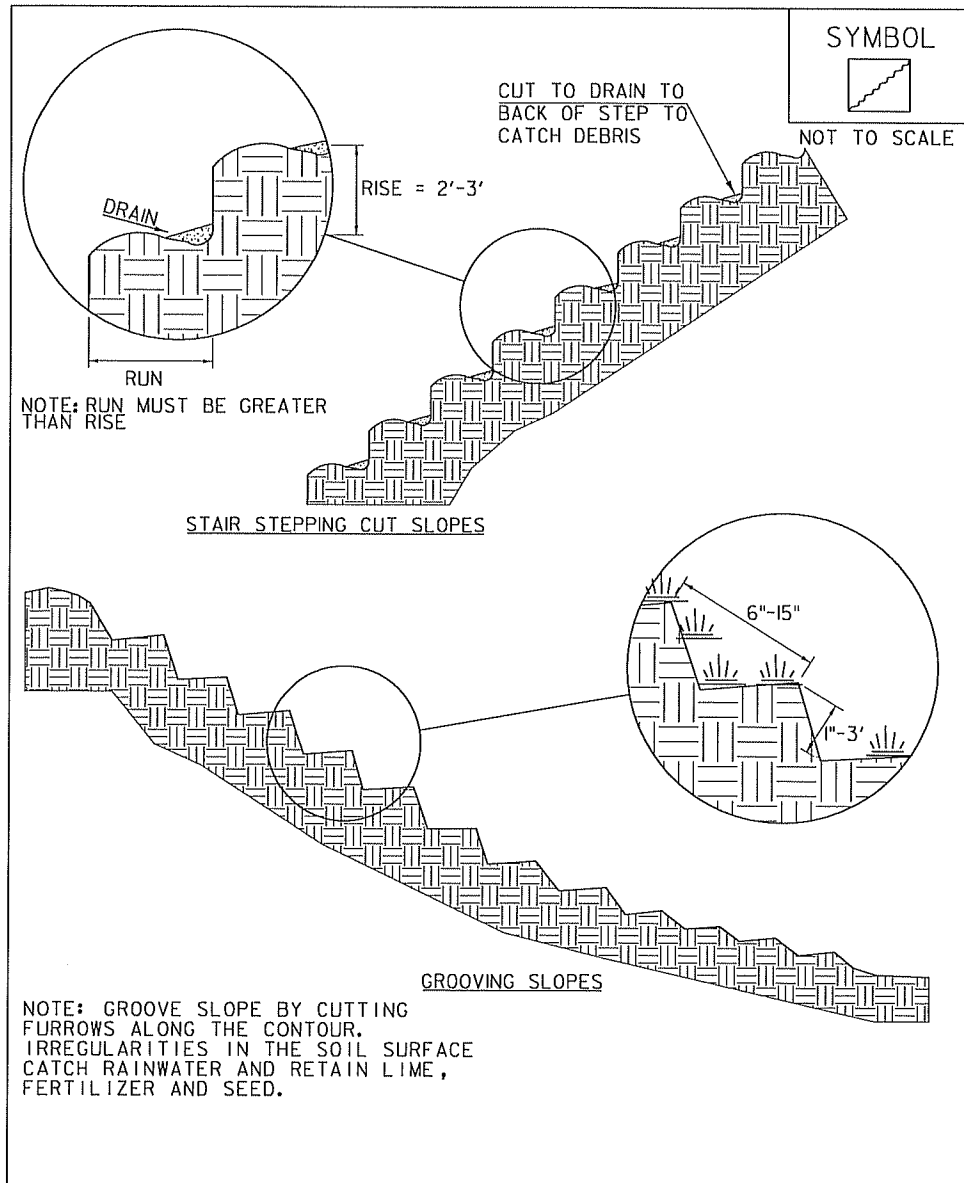
NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) OR PERMANENT EROSION MATTING (PAY ITEM 653.21).

REVISIONS	
APRIL 16, 2007	JMF
JANUARY 13, 2009	WHF

PROJECT NAME: LUNENBURG
PROJECT NUMBER: NH CULV(27)

FILE NAME: lib294/cos/2lib294erodet.dgn
PLOT DATE: 8/6/2015
PROJECT LEADER: J. BYATT
DRAWN BY: M. HALEY
DESIGNED BY: M. HALEY
CHECKED BY: P. SHEDD
EPSC DETAILS 2
SHEET 70 OF 74





ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SURFACE ROUGHENING

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR
EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM
THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL
GUIDANCE.

THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE
CONTRACT

REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF

CLD 12-0106 MODEL: ECO4



PROJECT NAME: LUNENBURG	
PROJECT NUMBER: NH CULV(27)	
FILE NAME: 11b294/cos/z11b294erodet.dgn	PLOT DATE: 8/6/2015
PROJECT LEADER: J. BYATT	DRAWN BY: M. HALEY
DESIGNED BY: M. HALEY	CHECKED BY: P. SHEDD
EPSC DETAILS 3	SHEET 71 OF 74

[illegible]

FILE NAME: \\lb294\cos\zl1b294rowdet.dgn	PLOT DATE: 10/10/2014
PROJECT LEADER: J. BYATT	DRAWN BY: S. GOODWIN
DESIGNED BY: P. SHEDD	CHECKED BY: P. SHEDD
ROW DETAIL SHEET #1	SHEET 72 OF 74